Index • 1982 • Volume XXV
The Journal of Environmental Sciences

SUBJECT INDEX

DESIGN, TEST AND EVALUATION (DT&E)

Acoustics

Communication and the Enhancement of Quality, H. E. Plumblee, Jr., No. 4, p. 15.

***Harpoon Missile Captive-Carry Dynamic Environments on the* A-6E Aircraft,** J. A. Zara, R. W. Elton, and J. L. Gubser, No. 5, p. 15.

High Intensity Acoustic Test Facilities in Japan, *T. Hikaka,* et al, No. 1, p. 19.

Climatics/Thermal

Current Boeing Experience with MIL-STD-1540A Component Qualification Program, H. M. McDaniel and L. A. Hopkins, No. 1, p. 36.

Method for Designing Temperature Profiles for Response-Defined Laboratory Testing of Air-Launched Missiles, S. Ogden, No. 2, p. 43.

***Methods of Determining* Operational Windspeed Limits,** T. G. Bergman and B. L. Hines, No. 3, p. 26.

Overview of the Aerothermal Environment of Air-Launched *Missiles,* *B. M. Ryan, No. 4, p. 22.*

Random Vibration Screening of Six Militarized Avionic Computers, R. K. Blake, No. 2, p. 15.

***The McDonnell Aircraft Environmental* Test Laboratory,** C. O. Hilgarth and J. E. Quist, No. 6, p. 20.

Criteria and Standards

A Random Vibration Test for the Evaluation of Stiff Sensitive Component Parts, R. W. Nankey, No. 5, p. 30.

***Current Boeing Experience with MIL-STD-1540A Component* Qualification Program,** H. M. McDaniel and L. A. Hopkins, No. 1, p. 36.

Department of Defense CERT Workshop Working Group Summaries, *No. 2, p. 25.*

Method for Designing Temperature Profiles for Response-Defined Laboratory Testing of Air-Launched Missiles, S. Ogden, *No. 2, p. 43.*

Methods of Determining Operational Windspeed Limits, T. G. Bergman and B. L. Hine, No. 3, p. 26.

On the Development of Effective Vibration Screens, *A. J. Curtis, No. 1, p. 16.*

Overview of the Aerothermal Environment of Air-Launched Missiles, B. M. Ryan, *No. 4, p. 22.*

Digital Analysis and Control

High Intensity Acoustic Test Facilities in Japan, *T. Hidaka,* et al, No. 1, p. 19.

Shock and Vibration

A Random Vibration Test for the Evaluation of Stiff Sensitive Component Parts, R. W. Nankey, No. 5, p. 30.

***Current Boeing Experience with MIL-STD-1540A Component* Qualification Program,** H. M. McDaniel and L. A. Hopkins, No. 1, p. 36.

***D.C. Shift on Vibration Measurements in Nuclear Power* Plants,** D. DeLucchi, No. 3, p. 22.

Harpoon Missile Captive-Carry Dynamic Environments on the *A-6E Aircraft,* *J. A. Zara, R. W. Elton, and J. L. Gubser, No. 5, p. 15.*

On the Development of Effective Vibration Screens, A. J. Curtis, No. 1, p. 16.

Random Vibration Screening of Six Militarized Avionic Computers, R. K. Blake, No. 2, p. 15.

The McDonnell Aircraft Environmental Test Laboratory, C. O. *Hilgarth and J. E. Quist, No. 6, p. 20.*

Toward a Solution of Van der Pol Systems I, H. B. Chenoweth, No. 2, p. 38.

***Vibration Isolation System Development for the* FB-111 Tail Pod Electronics,** R. T. Dolbeare and G. P. Tillman, No. 6, p. 34.

Solar/Space Simulation

Current Boeing Experience with MIL-STD-1540A Component Qualification Program, H. M. McDaniel and L. A. Hopkins, *No. 1, p. 36.*

Test Tailoring

Department of Defense CERT Workshop Working Group Summaries, No. 2, p. 25.

Harpoon Missile Captive-Carry Dynamic Environments on the *A-6E Aircraft,* *J. A. Zara, R. W. Elton, and J. L. Gubser, No. 5, p. 15.*

Method for Designing Temperature Profiles for Response-Defined Laboratory Testing of Air-Launched Missiles, S. Ogden, *No. 2, p. 43.*

On the Development of Effective Vibration Screens, A. J. Curtis, No. 1, p. 16.

***Overview of the Aerothermal Environment of Air-Launched* Missiles,** B. M. Ryan, No. 4, p. 22.

CONTAMINATION CONTROL (CC)

Clean Room Design and Materials

Auger Evaluation of Plasma Cleaning of Ceramics and Metals, G. Moore, *No. 5, p. 33.*

New Technology for Improved Clean Room Operations, S. A. Hoenig, No. 4, p. 30.

Particulate Fallout Predictions for Clean Rooms, *O. Hamberg,* No. 3, p. 15.

Preparation of Ultraclean Gloves for Precision Assembly Operations, M. E. Lacy, No. 5, p. 36.

Size Distributions of Test Aerosols Produced from Materials Other Than DOP, W. Hinds, J. Macher, and M. First, No. 3, p. 20.

***Some Basic Design Requirements for* Contamination Control in Microbiology Laboratories,** R. W. McKinney, No. 1, p. 40.

Filters and Filtration

A Regenerable Microporous Membrane Filtration System for *Industrial-Scale Separations of Particulate Matter from* Process Liquids, *F. R. Beadle, No. 4, p. 33.*

An Evaluation of Point-of-Use Filters for Semiconductor Process Gases, R. Brummett and R. V. Suslavcih, No. 6, p. 16.

***Size Distributions of Test Aerosols Produced from Materials* Other Than DOP,** W. Hinds, J. Macher, and M. First, No. 3, p. 20.

***Some Basic Design Requirements for Contamination Control* in Microbiology Laboratories,** R. W. McKinney, No. 1; p. 40.

Identification and Measurement

Auger Evaluation of Plasma Cleaning of Ceramics and Metals, G. Moore, No. 5, p. 33.

Autoradiography of Particulate Contamination, C. A. Gaston and R. B. Booth, No. 1, p. 43.

Contamination of Multilayer Printed Wiring Boards—A Case *Study,* *A. Henesian, No. 2, p. 31.*

Particulate Fallout Predictions for Clean Rooms, O. Hamberg, No. 3, p. 15.

Preparation of Ultraclean Gloves for Precision Assembly Operations, M. E. Lacy, No. 5, p. 36.

Size Distributions of Test Aerosols Produced from Materials *Other Than DOP,* *W. Hinds, J. Macher, and M. First, No. 3, p. 20.*

The Effects of Variations in Garment Protection on Clean Room Cleanliness Levels, C. W. Weber and J. M. Wieckowski, *No. 6, p. 13.*

Garments and Wipes

Preparation of Ultraclean Gloves for Precision Assembly Operations, M. E. Lacy, No. 5, p. 36.

The Effects of Variations in Garment Protection on Clean *Room Cleanliness Levels,* *C. W. Weber and J. M. Wieckowski,* No. 6, p. 13.

Sources and Effects

Contamination of Multilayer Printed Wiring Boards—A Case Study, A. Henesian, No. 2, p. 31.

New Technology for Improved Clean Room Operations, *S. A.* Hoenig, No. 4, p. 30.

Preparation of Ultraclean Gloves for Precision Assembly Operations, *M. E. Lacy, No. 5, p. 36.*

The Effects of Variations in Garment Protection on Clean Room Cleanliness Levels, C. W. Weber and J. M. Wieckowski, No. 6, p. 13.

Standards and Criteria

Particulate Fallout Predictions for Clean Rooms, *O. Hamberg, No. 3, p. 15.*

The Effects of Variations in Garment Protection on Clean Room Cleanliness Levels, C. W. Weber and J. M. Wieckowski, *No. 6, p. 13.*

PRODUCT RELIABILITY (PR)

Acquisition Policies

A Corporate View of Product Acceptance Screens, W. J. Willoughby, Jr., No. 1, p. 13.

Department of Defense CERT Workshop Working Group Summaries, *No. 2, p. 25.*

Criteria and Standards

Department of Defense CERT Workshop Working Group Summaries, No. 2, p. 25.

Method for Designing Temperature Profiles for Response-Defined Laboratory Testing of Air-Launched Missiles, S. Ogden, No. 2, p. 43.

On the Development of Effective Vibration Screens, A. J. Curtis, No. 1, p. 16.

Stress Screening

A Corporate View of Product Acceptance Screens, *W. J. Willoughby, Jr., No. 1, p. 13.*

A Random Vibration Test for the Evaluation of Stiff Sensitive *Component Parts,* *R. W. Nankey, No. 5, p. 30.*

Department of Defense CERT Workshop Working Group Summaries, No. 2, p. 25.

On the Development of Effective Vibration Screens, *A. J. Curtis, No. 1, p. 16.*

Random Vibration Screening of Six Militarized Avionic Computers, R. K. Blake, No. 2, p. 15.

ENERGY AND THE ENVIRONMENT

Air Quality Impact

***Comparison of CO_2 Production by* Ethanol and Methanol Production Systems,** R. Noon, No. 1, p. 33.

Environmental Aspects of Wild Grass Fires, B. W. Levitt, L. S. *Levitt, and R. B. Gomez, No. 2, p. 34.*

Introduction to Environmental Science: A Course for Non-Science Majors, G. C. Gupta, No. 4, p. 27.

***Laser Raman Spectroscopic Analysis of Mount St. Helens Ash* from the May 18, 1980 Eruption,** H. Ishizaki and A. T. Tu, No. 3, p. 32.

Energy Production and Use

Agricultural Ecosystems: A Scientist's Perspective, J. F. Power, *No. 6, p. 32.*

Characteristics of Nearshore Ice in Southwestern Alaska, W. J. Stringer, No. 5, p. 23.

***Communication and the Enhancement of* Quality,** H. E. Plumblee, Jr., No. 4, p. 15.

Comparison of CO_2 Production by Ethanol and Methanol Production Systems, R. Noon, No. 1, p. 33.

Future Prospects for Nuclear Power in the United States, A. N. Tschaeche, No. 1, p. 23.

Introduction to Environmental Science: A Course for Non-*Science Majors,* *G. C. Gupta, No. 4, p. 27.*

Environmental Planning

Agricultural Ecosystems: A Scientist's Perspective, J. F. Power, No. 6, p. 32.

Causes and Effects of the Deteriorating Himalayan Environment: A Preliminary Report, *S. S. Negi, No. 2, p. 47.*

Communication and the Enhancement of Quality, H. E. Plumblee, Jr., No. 4, p. 15.

Environmental Aspects of Wild Grass Fires, *B. W. Levitt, L. S. Levitt, and R. B. Gomez, No. 2, p. 34.*

Future Prospects for Nuclear Power in the United States, *A. N. Tschaeche, No. 1, p. 23.*

Introduction to Environmental Science: A Course for Non-Science Majors, G. C. Gupta, No. 4, p. 27.

The Department of Defense Superfund Program: An Overview, D. K. Emig and Y. H. Choi, No. 4, p. 35.

Health Effects

Introduction to Environmental Science: A Course for Non-Science Majors, G. C. Gupta, No. 4, p. 27.

***Materials for Metal Pollution Control: Bio-Organic Study of* Some Mercury Complexes,** G. C. Pandey, No. 3, p. 28.

Solid/Hazardous Waste Management

Introduction to Environmental Science: A Course for Non-Science Majors, G. C. Gupta, No. 4, p. 27.

Materials for Metal Pollution Control: Bio-Organic Study of Some Mercury Complexes, G. C. Pandey, No. 3, p. 28.

The Department of Defense Superfund Program: An Overview, *D. K. Emig and Y. H. Choi, No. 4, p. 35.*

Water Quality

Introduction to Environmental Science: A Course for Non-Science Majors, G. C. Gupta, No. 4, p. 27.

***Materials for Metal Pollution Control: Bio-Organic Study of* Some Mercury Complexes,** G. C. Pandey, No. 3, p. 28. ■

AUTHOR INDEX

B

Beadle, F. R., A Regenerable Microporous Membrane Filtration System for Industrial-Scale Separations of Particulate Matter from Process Liquids, No. 4, p. 33. *Crossflow microfiltration, like ultrafiltration and reverse osmosis, is an isothermal, pressure-driven separation process that employs high-flux semipermeable membranes operating under dynamic flow conditions. Crossflow microfiltration technology is an outgrowth of the development of a new manufacturing technique for producing a homogeneous, tubular membrane structure from polypropylene. Discusses performance characterization, applications, and operational considerations.* (Filters and Filtration)

Bergman, T. G., *Methods of Determining Operational Windspeed Limits*, No. 3, p. 26. *In order to establish the operational windspeed limits for a tripod-mounted U.S. Marine Corps instrument, the risks and windspeeds presented in MIL-STD-2108, United States windspeed maps, and worldwide airfield wind summaries are compared and evaluated.* Values for 1% steady winds and associated peak gusts are *presented based upon all of the data evaluated.* (Climatics/Thermal, DT&E Criteria and Standards)

Blake, R. K., Random Vibration Screening of Six Militarized Avionic Computers, No. 2, p. 15. Overview of the random *vibration screening performed by IBM Federal Systems Division on six types of digital computers for military avionic* applications, including thermal screening. Results cover general failure types, contributions by axis and failure *mechanism, input energy effects, and single vs. multiple axis excitation. Presents comparisons for pre- and post-*vibration thermal cycling. (Climatics/Thermal, Shock and Vibration, Stress Screening)

Booth, R. B., Autoradiography of Particulate Contamination, No. 1, p. 43. Analyzes the application of autoradiography techniques in evaluating contamination associated with *photoresist developing during the manufacture of integrated circuits. Autoradiography alternatives using activated natural particles, activated artificial particles, and carrier-free isotopes were evaluated. A gold-on-silicon carrier-free technique was selected and experiments conducted.* (Identification and Measurement)

Brummett, R., An Evaluation of Point-of-Use Filters for Semiconductor Process Gases, No. 6, p. 16. *The purpose of this study was to develop a selection criterion for choosing the "best" point-of-use gas filters for a semiconductor manufacturer. The work entailed a site survey, product survey, and filter testing program to evaluate various filtration products. Shows the results of filter particle testing and the criteria established to select the proper filter(s).* (Filters and Filtration)

C

CERT Workshop, Department of Defense Working Group Summaries, No. 2, p. 25. Excerpted from the proceedings of *the Department of Defense Combined Environment Reliability Test (CERT) Workshop held June 1981. Working group discussions and conclusions are presented, including CERT* management and cost effectiveness; technical application; *facilities; and MIL-STD-781, Appendix B vs. MIL-STD-810. Working group chairmen and participants represent both military and industrial organizations.* (DT&E Criteria and Standards, Test Tailoring, PR Acquisition Policies, PR Criteria and Standards, Stress Screening)

Chenoweth, H. B., Toward a Solution of Van der Pol Systems-I, No. 2, p. 38. The classical problem of nonlinear *oscillations in one-dimensional electrical and structural systems posed by Van der Pol is reduced to a linear differential equation. The approach to solving this problem is* to transform the Van der Pol nonlinear equation to the *hodograph plane. The solution of this equation can be used to practically resolve the problems associated with the triode oscillator, whirling/whipping shaft vibration,* some forms of space vehicle lift-off pogo, and sliding friction-induced vibration. (Shock and Vibration)

Choi, Y. H., The Department of Defense Superfund Program: An Overview, No. 4, p. 35. An overview of the Department *of Defense installation restoration program intended to establish a model example for other governmental agencies and industry which will eventually manage the cleanup of* chemical dump sites. DoD initiated the program from its *own concern for public health and welfare and environmental quality prior to any legislative mandate.* (Environmental Planning, Solid/Hazardous Waste Management)

Curtis, A. J., On the Development of Effective Vibration Screens, No. 1, p. 16. *Reviews the present status of vibration screen development and suggests a manner in which* screens may be prescribed with greater precision based *upon vibration surveys, flaw precipitation thresholds, and recognition of the iterative nature of screening.* (DT&E Criteria and Standards, Shock and Vibration, Test Tailoring, PR Criteria and Standards, Stress Screening)

D

De Lucchi, D., *D.C. Shift on Vibration Measurements in Nuclear Power Plants*, No. 3, p. 22. *Piezoelectric accelerometers and associated charge amplifiers or converters are* used to acquire vibration data at nuclear plants. *A D.C. shift appears at the beginning of some shock and vibration time histories recorded during safety relief valve discharge tests. Explains why this phenomenon occurs and suggests methods for correcting the problem.* (Shock and Vibration)

Dolbeare, R. T., Vibration Isolation System Development for the FB-111 Tail Pod Electronics, No. 6, p. 32. *Discusses* the analysis, design, and testing performed in developing *the isolation system for electronics subjected to the extremely severe vibration environment at the tip of the FB-111 aircraft vertical stabilizer. Included data shows the random vibration response for both the hard-mounted and soft-mounted configurations.* (Shock and Vibration)

E

Elton, R. W., Harpoon Missile Captive-Carry Dynamic Environments on the A-6E Aircraft, No. 5, p. 15. As part of the *integration of the U.S. Navy Harpoon Antiship Missile with the A-6 intruder attack aircraft, flight tests were conducted to measure captive-carry dynamic environments. Catapult* launch, arrested landings, and a variety of flight conditions *were investigated. Acoustic, shock, and vibration wideband measurements were made at key locations using an instrumented missile. Three flight configurations were flown to* assess missile environments at different wing stations and *to assess the influence of an adjacent store. Level flight and maneuver conditions were measured covering a wide* range of aircraft speeds and altitudes.

This paper summarizes the environments measured and *discusses the significant characteristics of the data. Variations in response characteristics with test condition, measurement direction, and missile body location are presented.* The influence of wing station and an adjacent store on the *harpoon dynamic environments for various flight conditions are also discussed. Data is presented in a manner to aid in the design of future missile systems.* (Acoustics, Shock and Vibration, Test Tailoring)

Emig, D. K., The Department of Defense Superfund Program: An Overview, No. 4, p. 35. *(Abstract—see Choi, Y. H.)*

F

First, M., *Size Distributions of Test Aerosols Produced from* Materials Other Than DOP, No. 3, p. 20. *DOP, dioctyl* phthalate [or di(2-ethylhexyl)phthalate (DEHP)], a plasti*cizer, has been used to produce test aerosols for in-place filter testing of HEPA filters and for respirator fit testing. Recent studies have shown this material to be a potential* health hazard and substitute materials for test aerosols are being sought. Particle size distributions were measured for *corn oil, DEHP, di(2-ethylhexyl)sebacate (DOS), mineral oil, and polyethylene glycol (PEG) using a Laskin nozzle aerosol generator and an optical particle counter. Size distributions showed count median diameters from 0.22 to 0.30 μm, with little difference between materials, operating pressures, or liquid levels. The size distributions produced with* corn oil and mineral oil were the closest to the DEHP size *distribution.* (Clean Room Design and Materials, Filters and Filtration, Identification and Measurement)

G

Gaston, C. A., Autoradiography of Particulate Contamination, No. 1, p. 43. *(Abstract—see Booth, R. B.)*

Gomez, R. B., Environmental Aspects of Wild Grass Fires, No. 2, p. 34. An analysis of the atmospheric effects result*ing from large-scale grassland burning practices throughout the world. Includes moisture content effects, heat release and rate of heat production, flame propagation* characteristics, and combustion by-products. (Air Quality Impact, Environmental Planning)

Gubser, J. L., Harpoon Missile Captive-Carry Dynamic Environments on the A-6E Aircraft, No. 5, p. 15. (Abstract—*see Elton, R. W.)*

Gupta, G. C., Introduction to Environmental Science: A Course for Non-Science Majors, No. 4, p. 27. An examination of our educational system indicates the need to fill *the gaps in our present science curricula for non-science students. Describes an interdisciplinary, community-*oriented, problem-solving course which integrates scientific *and socio-politico-economic aspects of environmental degradation. Cites results of student participation in and evaluation of this "general education core" course.* (Air Quality Impact, Energy Production and Use, Environmental Planning, Health Effects, Solid/Hazardous Waste Management, *Water Quality Impact)*

H

Hemberg, O., Particulate Fallout Predictions for Clean Rooms, No. 3, p. 15. *A presentation of empirical data on particulate fallout rates obtained from various publications and agencies. Evaluates these data relative to their applicability* in predicting fallout rates in a known cleanliness en*vironment.* (Clean Room Design and Materials, Identification and Measurement, CC Standards and Criteria)

Henneian, A., Contamination of Multilayer Printed Wiring Boards—A Case Study, No. 2, p. 31. *Summary of an in-depth investigation conducted to determine the reason for a sudden and unexpected showing of insulation resistance anamolies in multilayer printed wiring boards used in production at Lockheed Missiles and Space Company. New material specification was established and an improved cleaning practice was put into use.* (Identification and Measurement, Sources and Effects)

Hidaka, T., et al, *High Intensity Acoustic Test Facilities in Japan*, No. 1, p. 19. *Describes the National Space Development Agency of Japan medium-sized acoustic test facility,* including three different sized reverberant cells, air *supply system, and automated control and data acquisition system.* (Acoustics, Digital Analysis and Control)

Hilgarth, C. O., The McDonnell Aircraft Environmental Test Laboratory, No. 6, p. 20. *Discusses the planning, specifications, construction, actual performance, test experience, and general observations of an environmental test facility recently completed comprising a combined environment test chamber, temperature-altitude-humidity test chambers and a vibration test facility from inception to completion.* (Climatics/Thermal, Shock and Vibration)

Hinds, W., Size Distributions of Test Aerosols Produced from Materials Other Than DOP, No. 3, p. 20. *(Abstract—see First, M.)*

Hine, B. L., Methods of Determining Operational Windspeed Limits, No. 3, p. 26. (Abstract—see Bergman, T. G.)

Hoenig, S. A., *New Technology for Improved Clean Room* Operations, No. 4, p. 30. *Several systems for improving* the operation of air showers for removing contamination *from clean room garments have been investigated. Another study evaluated various garment materials as to their ability to shed dirt in an air blowing test designed to simulate* an air shower. Discusses the development of new electro*static dust collectors to act as "electrostatic flypaper" to remove floating dust from the clean room environment.* (Clean Room Design and Materials, Sources and Effects)

Hopkins, L. A., Current Boeing Experience with MIL-STD-1540A Component Qualification Program, No. 1, p. 36. *Assesses the effectiveness of the component qualification* program for the inertial upper stage (IUS). Based on MIL-*STD-1540A, the qualification program includes vibration, pyroshock and thermal cycling. The authors conclude that MIL-STD-1540A is effective, but that pyroshock testing does* not seem reasonable. (Climatics/Thermal, DT&E Criteria and Standards, Shock and Vibration, Solar/Space Simulation)

I

Ishizaki, H., Laser Raman Spectroscopic Analysis of Mount St. Helens Ash from the May 18, 1980 Eruption, No. 3, p. 32. *Raman spectroscopy is a simple and rapid analytical method and provides an overall fingerprint pattern of the* volcanic ash. The laser spectrum of the Mount St. Helens *volcanic ash was obtained. The major spectral peaks were identified as silicon dioxide (not free silica), which is the most abundant element in the ash. The raman bands for* Al_2O_3 and Fe_2O_3 were also observed. No bands for organic *compounds were observed.* (Air Quality Impact)

L

Lacy, M. E., Preparation of Ultraclean Gloves for Precision Assembly Operations, No. 5, p. 36. *Some clean room gloves are sufficiently clean to be suitable for many precision assembly operations. However, for certain ultraclean as*sembly procedures, properly cleaned gloves are difficult *to obtain. A significant quantity of inertial instrument parts was rejected at final assembly for the presence of occasional microdeposits. Describes the analytical techniques* employed in the identification of these microdeposits as *well as tracing their origin in the release agent used in glove manufacture. Poor access dictated by glove surface requirements for gripping and physical forces acting upon* these particles rendered them resistant to conventional *cleaning methods. Outlines a novel technique for obtaining "particle-free" gloves.* (Clean Room Design and Materials, Identification and Measurement, Garments and Wipes, Sources and Effects)

Levitt, B. W., Environmental Aspects of Wild Grass Fires, No. 2, p. 34. *(Abstract—see Gomez, R. B.)*

Levitt, L. S., Environmental Aspects of Wild Grass Fires, No. 2, p. 34. *(Abstract—see Gomez, R. B.)*

M

Macher, J., Size Distributions of Test Aerosols Produced from Materials Other Than DOP, No. 3, p. 20. *(Abstract—see First, M.)*

McDaniel, H. M., Current Boeing Experience with MIL-STD-1540A Component Qualification Program, No. 1, p. 36. *(Abstract—see Hopkins, L. A.)*

McKinney, R. W., Some Basic Design Requirements for Contamination Control in Microbiology Laboratories, No. 1, p. 40. *Reviews laboratory design features for protecting personnel, test materials, and the environment against con*tamination from microbiologic agents. Discusses basic *microbiology containment, and maximum containment facilities and highlights use of primary barriers.* (Clean Room Design and Materials, Filters and Filtration)

Moore, G., Auger Evaluation of Plasma Cleaning of Ceramics and Metals, No. 5, p. 33. *Low energy Argon ion plasma cleaning is sometimes used to remove light contamination* from components used in vacuum devices. *Auger electron spectroscopic and x-ray photo electron spectroscopic evaluations of plasma etched ceramics, molybdenum, rodar, and stainless steel indicate that thin films of carbon and* other surface contaminants are readily removed from *ceramics and metals by the plasma cleaning process. Auger results show that plasma cleaning leaves no residue and cleans surfaces as effectively as hydrogen firing. How*ever, a thin, clean oxide is formed on some metals that *have been plasma cleaned.* (Clean Room Design and Materials, Identification and Measurement)

N

Nankey, R. W., A Random Vibration Test for the Evaluation of Stiff Sensitive Component Parts, No. 5, p. 30. *Describes a test method that can be used to simulate the effects of a high level random vibration environment on a class of* component parts. These components are characterized *by having their resonant frequencies above the upper frequency limit of the applied vibration spectrum and by being structurally or functionally sensitive to the effects of* vibration. Contemporary component test specifications fall *short of adequate test requirements for this purpose.* (DT&E Criteria and Standards, Shock and Vibration, Stress Screening)

Negi, S. S., Causes and Effects of the Deteriorating Himalayan Environment: A Preliminary Report, No. 2, p. 47. *Summary of the causes and effects of deterioration experienced by the Himalayan environment. Examines the relationships among various causative factors including degraded forests, massive construction projects, landslides, shifting cultivation, quarrying, overgrazing, water pollution and tourism.* (Environmental Planning)

Noon, R., Comparison of CO_2 Production by Ethanol and Methanol Production Systems, No. 1, p. 33. *A preliminary analysis of the carbon dioxide evolution associated with methanol production from coal as compared with that associated with ethanol production using coal or natural gas as a process energy. It is shown that ethanol production has less overall carbon dioxide production and adds less new carbon dioxide to the carbon dioxide-plant life cycle.* (Air Quality Impact, Energy Production and Use)

O

Ogden, S., *Method for Designing Temperature Profiles for* Response-Defined Laboratory Testing of Air-Launched Missiles, No. 2, p. 43. Describes a method of developing response-defined temperature test profiles for *air-launched missiles based upon mission profile analyses, thermal models, and iterative profile adjustments resulting from comparisons of laboratory vs. mission internal temperature measurements. Testing using thermal profiles derived by this methodology found failure modes typical of those found in service and which were not found by simpler* extreme-hot to extreme-cold test cycles. (Climatics/Thermal, DT&E Criteria and Standards, Test Tailoring, PR Criteria and Standards)

P

Pandey, G. C., Materials for Metal Pollution Control: Bio-Inorganic Study of Some Mercury Complexes, No. 3, p. 28. *An hypothesis is suggested to account for the control of metal pollution in the natural aquatic system without their removal. Having higher stability, metals trapped in the coordination sphere reduce the possibility of chemical degradation and biological response in the natural environment, provided the ligand and the metal complex are non-toxic. The chelating behavior and stability constants of mercury with 2-amino-phenol, 2 amino-5-nitro phenol and 2-amino-thio-phenol have shown that though the stoichiometry of Mercury (II) complexes is the same, the 2-amino thio phenol complex is more stable than others.*

Lymphocytes obtained from rabbits peripheral blood were cultured in the presence of phytohemagglutinin, metal ion, and ligands mentioned above and their Hg (II) complexes. The DNA synthesis was measured with tritiated thymidine. These stable metal complexes gave a higher DNA synthesis than the metal ion, while the ligands themselves showed statistically significant reduction in DNA synthesis in triplicate cultures. (Health Effects, Solid/Hazardous Waste Management, Water Quality Impact)

Plumlee, H. E., Jr., Communication and the Enhancement of Quality, No. 4, p. 15. Delivered as the Keynote Address *for the IES Annual Technical Meeting, April 1982. Analyzes the causes of prevalent public misconceptions concerning the application of technological advancements and environmental impacts with specific examples regarding nuclear energy and airport noise levels. Communications between environmental scientists and the general public must be increased and improved if society is to properly understand and apply potential technological developments.* (Acoustics, Energy Production and Use, Environmental Planning)

Power, J. F., Agricultural Ecosystems: A Scientist's Perspective, No. 6, p. 32. *Discusses critical problems associated with capital-intensive agriculture. Problems highlighted are* increased farm and equipment size, substitution of agricultural chemicals, and the use of *improved cultivars and mechanization. Recommendations for future directions in agricultural research are included.* (Energy Production and Use, Environmental Planning)

Q

Quist, J. E., The McDonnell Aircraft Environmental Test Laboratory, No. 6, p. 20. *(Abstract—see Hilgarth, C. O.)*

R

Ryan, B. M., Overview of the Aerothermal Environment of Air-Launched Missiles, No. 4, p. 22. Overview of the environmental factors which affect the storage and *captive-carry temperature response of air-launched missiles. Storage and preflight conditions along with performance capabilities of* the carrying aircraft and operational techniques and mission profiles required by current tactics are evaluated for *their influence on missile temperature responses. Effect of meteorological and climatic conditions due to the atmospheric* temperature distribution, which changes substantially as a result of seasonal and geographic effects as *well as altitude, is also considered. The impact of high Mach numbers and extended flight times of modern high* performance aircraft and sophisticated missile systems is *evaluated along with identification of problem areas and knowledge gaps.* (Climatics/Thermal, DT&E Criteria and Standards, Test Tailoring)

S

Stringer, W. J., Characteristics of Nearshore Ice in Southwestern Alaska, No. 5, p. 23. *A description of Bering Sea nearshore ice conditions in southwestern Alaska is presented based on a compilation of fast ice edge statistics* and analysis of specific ice events from satellite imagery. *Landsat imagery was used at 1:500,000 scale to map Bering Sea nearshore ice conditions for 1973-76. Maps of fast ice edge locations were then compiled on a seasonal basis.* Seasonal locations of fast ice edge were then compared to *determine seasonal trends in fast ice extent.*

This information was combined together with bathymetric, climatological, and tidal data to produce a regional description of characteristic nearshore ice conditions along the Bering Sea coast from the Yukon River delta to Izembeck Lagoon on the Alaska peninsula. In addition to these specific results, it was found that nearshore ice conditions vary considerably from North to South within the study area as a result of climatic trend; regional pack ice motions, tidal variations, and prevailing local winds. These factors combine to produce a transition from extensive, stable fast ice in the North to fast ice which is extremely limited in extent and somewhat unstable in the South. (Energy Production and Use)

Suslavich, R. V., *An Evaluation of Point-of-Use Filters for* Semiconductor Process Gases, No. 6, p. 16. *(Abstract—see Brummett, R.)*

T

Tillman, G. P., Vibration Isolation System Development for *the FB-111 Tail Pod Electronics, No. 6, p. 34. (Abstract—see Dolbeare, R.)*

Tschaeche, A. N., Future Prospects for Nuclear Power in the *United States. No. 1, p. 23. Discusses the dichotomy between public attitudes towards nuclear power. Government* policy variability, congressional attitudes, and public attitudes and *misconceptions are included.* (Energy Production and Use, Environmental Planning)

Tu, A. T., Laser Raman Spectroscopic Analysis of Mount St. Helens Ash from the May 18, 1980 Eruption, No. 3, p. 32. *(Abstract—see Ishizaki, H.)*

W

Weber, C. W., The Effects of Variations in Garment Protection on Clean Room Cleanliness Levels, No. 6, p. 13. With an *increasing need for more stringent contamination controls within clean rooms, the selection of the best combination* of protective garments and their duration of use to maintain a desired cleanliness level becomes highly significant. *Examines the changes in cleanliness levels for airborne and surface-migrating particles as the use of garments* varies from the maximum protection of coveralls, hoods, and boots to the minimum protection of dacron smocks. *Presents results of particle shedding by garments after periods of use from one to five days.* (Identification and Measurement, Garments and Wipes, Sources and Effects, CC Standards and Criteria)

Wieckowski, J. M., The Effects of Variations in Garment Protection on Clean Room Cleanliness Levels, No. 6, p. 13. (Abstract—see Weber, C. W.)

Willoughby, W. J. Jr., *A Corporate View of Product Acceptance* Screens, No. 1, p. 13. (Keynote Address to the 2nd National Conference and Workshop on Environmental *Stress Screening of Electronic Hardware.) Takes corporate executives to task for their ignorance of the interrelationship* between product quality and productivity. Describes successful use of stress screening in case histories and the *role of screening in reducing corporate costs.* (PR Acquisition Policies, Stress Screening)

Z

Zara, J. A., Harpoon Missile Captive-Carry Dynamic Environments on the A-6E Aircraft, No. 5, p. 15. *(Abstract—see Elton, R. W.)*

Call for Papers

These instructions are recommended guidelines for preparation of a technical paper for review and possible publication in the JOURNAL OF ENVIRONMENTAL SCIENCES.

Title—*Must be descriptive but concise.*

Keywords—Assign up to six (6) keywords *that identify the major* technical, administrative, or philosophical thrusts of the paper.

Abstract—A one-paragraph summary of the highlights of the paper, including basic purpose or problem and nature of approach, content, and key findings.

Length and Format—Papers must be between 10 and 25 pages in length, typewritten, doublespaced.

Content—Even though the specific content of the paper will be determined by the particular subject matter, as a minimum the following must be included:

- sufficient background material to describe circumstances surrounding the issue discussed or the need for the work performed;
- explanation of and rationale behind all assumptions made;
- sufficient technical detail, including data, references, test equipment, procedures, to demonstrate the validity of the work performed or conclusions drawn;
- clearly identified conclusions with supporting rationale and associated recommendations, where appropriate;
- a brief summary to establish or reinforce reader perspective.

Acronyms/Special Terms—All acronyms, abbreviations, special terms and *phrases must be defined or explained.*

Equations—All equations and formulae *must be numbered consecutively. All* variables and terms must be clearly identified.

Units—"Soft metric" dimensions and other units of measurement should be *used: metric value followed by English* equivalent in parentheses.

References—*All references must be* numbered consecutively, listed at the end of the paper, and referenced in appropriate locations in the text.

Illustrations—All illustrations must be accompanied by a figure number and a complete caption. Extra detail in *the captions is encouraged to highlight* illustration features.

Photographs must be sharp black and *white prints no smaller than 13 x 18* cm (5" x 7"). Blurred, poor contrast, or visually uninformative photographs will be rejected.

Drawings, charts and graphs should be clear black and white, camera ready line-art. Labels typed with conventional type face are not acceptable. *Computer printouts (unless used* to demonstrate format features), conventional engineering drawings (blue*prints) are not acceptable.*

Quantity—Three (3) copies of the manuscript must be submitted.

Biography—Approximately 100 words describing the author's education, *background, experience* and other pertinent qualifications should be submitted with the paper.

Direct any questions concerning these requirements as well as the final manu*script to* ***Janet Ehmann,*** *Publications* Editor, IES National Office, 940 East Northwest Highway, Mount Prospect, Illinois 60056, 312/255-1561. ■